Improving Regrind Process

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Teaching content area(s): Tech. Ed.
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Part I: General Overview of Business

American Profol is located in Cedar Rapids. They produce cast film, (rolls of plastic). The Cedar Rapids location is the only production facility in North America. The business has two more facilities located across the globe. One facility is located in China and the corporate headquarters and another production facility are in Germany.

The Cedar Rapids facility began operation in 1992. The cast film produced is utilized in numerous products. For instance, one of their biggest customers uses Profol's products to manufacture 3 ring binders. Profol's business anchors their beliefs on three primary cornerstones: Quality, Innovation, and Value.

Part II: Job Specifics

The problem involves everyone in the production facility. Management and quality control identify the problem, though the message may have been relayed from production. The plant engineers respond to the issues and develop solutions to resolve the concerns. The maintenance department installs or refurbishes the equipment to diminish the problem. Finally, production operators and technicians follow plans and updated operations to help minimize the dilemma. Each member's communication and cooperation is essential to the success of the process.

Part III: Introduce the Problem

For businesses and industries to be profitable they need to maximize efficiency. Cast film comes in various colors with differing widths and thicknesses. When changing work orders the line needs to purge and extract the old color and other ingredients. This takes time but procedures have been implemented to increase the efficiency of the change over. The problem is old "fluff" is getting caught in the tubing or hopper and releasing during the subsequent production orders. For instance, order #1 is black film, though order #2 will blue. On occasion the "fluff" dislodges and enters the ingredients for the next order. This causes color rings and creates unneeded or wanted scrap material.

Part IV: Background

The students will need explanation and examples of the cast film production process. I will also provide hints or cues referencing the regrind process and reintroduction. I'm presenting the problem very broadly because there are multiple applicable solutions. I will include short videos, links to cast film processing, and pictures.

With this activity the problem has already been identified and solutions actually are already in place. I want my students to examine more than what is currently being used to remedy the problem. I want them to find root causes of the problem and come up with solutions that cease the creation of color rings.

Part V: Business Solution

The business has spent sufficient resources trying to minimize and diminish the issue. Currently new equipment is being installed to negate the color ring occurrences. Also, engineers are resolving plans and procedures to approach the matter proactively instead of reacting when situations arise.

Part VI: Student Solutions

I think students will create devices or systems that purge the old "fluff" from the tubes. I imagine some will develop a scraper type of a system. Others may use a vacuum style set up. I'm hoping for a wide array of solutions of varying types.